

The Files: Contract No: 672, T.O. 6

21 August 1962

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Trip Report - Development of HI-5 Hand Crank Generator

1. Project Description:

The HI-5 is to be a hand crank generator which will have an output of approximately 40 watts at a constant current of 2.5 amperes into a self-contained 12 volt nickel-cadmium battery. The two generators being fabricated under this contract will not be in a final package in that the battery pack and control electronics will be packaged apart from the basic generator. These two units will be used for feasibility testing to determine the practicability (both operationally and technically) of such a device.

2. Contractual Information:

- a. Initial Cost: \$4,992.00
- b. Initiation Date: 15 June 1962
- c. Completion Date: 5 October 1962
- d. Deliverable Items: 2 each Engineering Models
Final Report

3. Date of Meeting: 9 August 1962

4. Place of Meeting:

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5. Persons Attending:

Agency

Non-Agency

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6. Contractor's Performance:

- a. On Schedule and Expected to Remain So: Yes
- b. Within Obligated Funds and Expected to Remain So: Yes
- c. Satisfactory Technical Progress: Yes

SUBJECT: Trip Report - Development of H3-5 Head Crash Generator

The H3-5 is an off-shoot of the HHP-1 developed by [REDACTED] for HHD and is essentially two H3-3's back-to-back. Therefore, the mechanical and electrical characteristics of the H3-5 are not new. However, the idea of paralleling a battery made up of sealed nickel cadmium cells across the H3-5 has not yet been evaluated in practice and could prove to be a source of trouble.

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The battery pack selected to be used in the H3-5 is made up of ten 9-108 (Size F) cells manufactured by the [REDACTED]. These cells are rated at 5.6 AH at the five hour rate and 4.8 AH at the one hour rate. The manufacturer's recommended charging rate is 560 ma for 1 1/2 hours. If this charging rate is exceeded, the cells can be damaged. However, the cells can be charged at a higher rate (2.5 amperes in the case of the H3-5) providing the cells are not overcharged. Since the terminal voltage of a nickel cadmium cell rises during a charging cycle, it is possible to avoid overcharge by monitoring the terminal voltage.

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A fully charged 10 cell battery will have a terminal voltage of about 15.5 to 16 volts. The H3-5 will have circuitry that will monitor the terminal voltage of the battery and when it reaches 14 volts, a red lamp will come on. This will be an indication for an operator to stop cranking. Additionally, the H3-5 will have a green light to indicate that the generator is delivering 2.5 amperes into the battery.

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Mr. [REDACTED] stated that the generators would be delivered in October providing all the necessary components are received on schedule.

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